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MATHEMATICS Preparation 10

Module 2

Number Connections

Learning Technologies Branch

Assignment Booklet 2A

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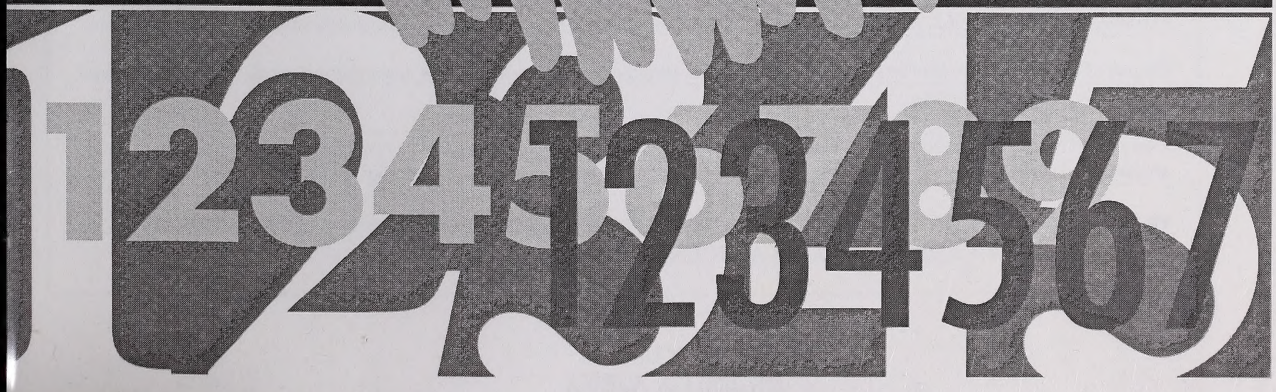

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Summary

	Total Possible Marks	Your Mark
Section 1 Assignment	39	

Teacher's Comments

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Parents	
General Public	
Other	

Mathematics Preparation 10
Module 2: Number Connections
Assignment Booklet 2A
Section 1 Assignment
Learning Technologies Branch
ISBN 0-7741-1747-8

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ASSIGNMENT BOOKLET 2A
MODULE 2: NUMBER CONNECTIONS
SECTION 1 ASSIGNMENT

Your mark for this module will be determined by how well you do your assignments in the Assignment Booklets.

This Assignment Booklet is worth 39 marks out of the total 100 marks for Module 2.

Work slowly and carefully. If you are having difficulties, go back and review the appropriate topic.

Be sure to proofread your answers carefully.

(39)

Section 1 Assignment: Fractions and Mixed Numbers

Read all parts of your assignment carefully and record your answers in the appropriate places. Clearly show how you arrived at your answers by showing your work.

(2)

1. A friend tells you he will meet you in $\frac{3}{4}$ h. State another way you can describe $\frac{3}{4}$ h. Explain your solution, pretending that your explanation is for an elementary school child.

(4)

2. Write two equivalent fractions for $\frac{5}{12}$. Explain a mathematical situation in which the procedure of finding equivalent fractions is frequently used?

_____

_____

_____

_____

(8)

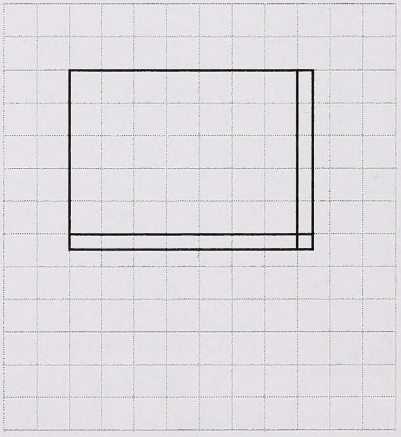
3. Complete the following chart by converting fractions to equivalent forms or writing decimals as fractions.

Proper Fraction	Improper Fraction	Mixed Number	Decimal
		$5\frac{1}{3}$	
	$\frac{11}{4}$		
$\frac{2}{5}$			
			1.25
			$0.\overline{7}$

4. Jennifer worked $7\frac{1}{2}$ h each day and worked $5\frac{1}{2}$ days.

(6)

a. Determine how many hours Jennifer worked by completing the model.



(2) **b.** Determine how many hours Jennifer worked using the pencil-and-paper method for multiplication of fractions.

(5) **5.** Perform the indicated operations. Present your answers in simplest form.

a. $1\frac{1}{2}+\frac{3}{4}$

b. $\frac{7}{4}-\frac{1}{3}$

c. $\frac{5}{6}\div\frac{2}{3}$

d. $4\frac{1}{3}-1\frac{5}{6}$

e. $2\frac{1}{3}\times 4\frac{1}{2}$

(1) **6.** Bill shows the addition of $\frac{3}{8}+\frac{1}{2}$ using these diagrams.

Step 1:

Step 2:

When Bill changes the size of pieces in Step 2, what does this step correspond to in the algorithm for adding fractions?

---

(1) **7.** The principal suggests the amount of math homework for a grade 10 student is $\frac{1}{2}$ h per day and none on weekends. What is the total amount of homework that should be expected in a 5-day week?

(1) **8.** A recipe for layered squares calls for $\frac{1}{3}$ cup of sugar for the base and $1\frac{1}{2}$ cups of sugar for the filling. Determine the total amount of sugar required.

(2) **9.** George enjoys listening to $\frac{7}{8}$ of his CD collection. Of the CDs he enjoys, $\frac{3}{4}$ of them are considered to be heavy metal. What fraction of his collection are heavy metal CDs that he enjoys? Explain why your answer is less than $\frac{3}{4}$? You may use diagrams.

(2) **10.** Two children went raspberry picking. Christine picked $\frac{3}{4}$ of an ice cream bucket and Michael picked $\frac{7}{8}$ of an ice cream bucket. Which child picked more and by how much?

(1) **11.** A basketball team, consisting of 14 players, is travelling from Vermilion to Camrose. They plan to travel by car. If 4 people can fit into each car, how many cars are needed?

12. Decorative lights come in boxes of 96. Gerda used 5 boxes of light bulbs to decorate her home. When she put the light bulbs away, she discarded the 36 bulbs that were either broken or not working. She fills each box before using another box.

(1) **a.** How many boxes does she need to pack her light bulbs away?

(1) **b.** What fraction of the partially filled box is filled?

13. Gloria receives \$120 every month. She budgets $\frac{2}{3}$ of her money for clothes, $\frac{1}{6}$ of her money for bus fare, and the rest for entertainment.

(1) **a.** What fraction of her money does she budget for entertainment?

(1) **b.** How much money does she budget for bus fare?

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MATHEMATICS
Preparation 10

Module 2

Number Connections

Learning Technologies Branch

Assignment Booklet 2B

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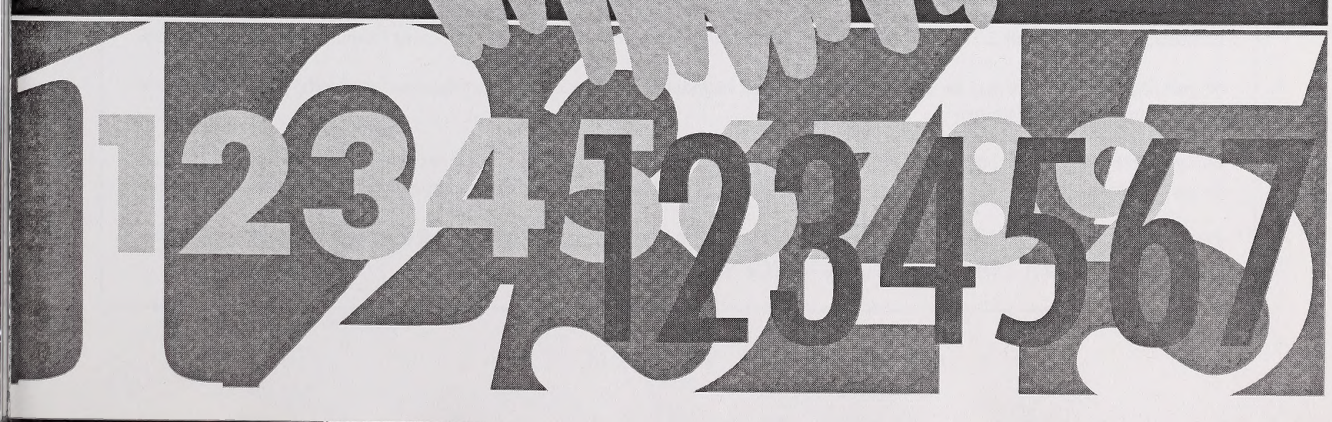

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Summary

	Total Possible Marks	Your Mark
Section 2 Assignment	30	

Teacher's Comments

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Parents	
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Other	

Mathematics Preparation 10
Module 2: Number Connections
Assignment Booklet 2B
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ASSIGNMENT BOOKLET 2B
MODULE 2: NUMBER CONNECTIONS
SECTION 2 ASSIGNMENT

Your mark for this module will be determined by how well you do your assignments in the Assignment Booklets.

This Assignment Booklet is worth 30 marks out of the total 100 marks for Module 2.

Work slowly and carefully. If you are having difficulties, go back and review the appropriate topic.

Be sure to proofread your answers carefully.

(30)

Section 2 Assignment: Using Fractions: Rates, Ratios, and Proportions

Read all parts of your assignment carefully and record your answers in the appropriate places. Clearly show how you arrived at your answers by showing your work.

1. A survey was conducted to determine the number of cats and dogs in a condominium complex. In the first set of condominiums, the results were as follows: N D N D C D D, where D represents a dog, C represents a cat, and N represents no cat or dog. Describe what each of the following ratios represents.

(1) **a.** 1 to 4

_____

(1) **b.** $\frac{5}{7}$

_____

(2) **c.** If this set of condominiums is assumed to be representative of the entire condominium complex, how many dogs would you expect there to be in a complex with 63 condominiums?

2. The percentage of women that exercise three or more times weekly is about 58%, and the percentage of men that exercise three or more times weekly is 56%.

(2) **a.** Write the ratio of the percent of women that exercise three or more times weekly to the percent of men that exercise three or more times weekly as a fraction in lowest terms.

(2) **b.** What percentage of women exercise less than three times weekly.

(2) **c.** Write the percentage in question 2.b. as a decimal number and as a fraction in simplest form.

(2) **d.** If you interviewed 400 men, how many would you expect that exercise three or more times weekly?

(2) **3.** About 500 mg of caffeine is found in 4 cups of coffee. Express the rate of caffeine to coffee in simplest form.

(2) **4.** Write two proportional rates for the following:

U.S.$1.00 costs CDN $1.47

5. A student council organized an activity day. The choice of activities was going to a waterslide, a museum, or an art gallery.

(2) **a.** If $\frac{3}{5}$ of the student population chose the waterslide and the rest were evenly split between the museum and the art gallery, what percent of the student population chose the museum?

(2) **b.** If there are 1200 students, how many chose the waterslide?

(1) **6.** On a test, Derek answered 21 out of 25 questions correctly. What percent did he answer correctly?

7. Soon-Li sells clothes at home parties. She sold $1250 worth of clothes and earned $300.

(2) **a.** What percent of the total sales did she receive?

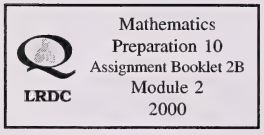
(2) **b.** If it takes Soon-Li $1\frac{1}{2}$ h to set up and put the clothes away and the party is $4\frac{1}{2}$ h long, determine her hourly rate of pay.

8. In a grade 4 class consisting of 32 children, 6 of the children wear glasses.

(1) **a.** Write the ratio of the number of children that wear glasses to the number of children who don't wear glasses as a fraction in simplest form.

(2) **b.** Calculate the percent of children who wear glasses in this class.

(2) **9.** An airline books 120% of the seats. They typically have many cancellations; so, it is common to overbook. If a certain flight has 250 seats and no one cancels, how many people will they have to make other arrangements for?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Assignment Booklet 2B
Module 2
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MATHEMATICS
Preparation 10

Module 2

Number Connections

Learning Technologies Branch

Assignment Booklet 2C

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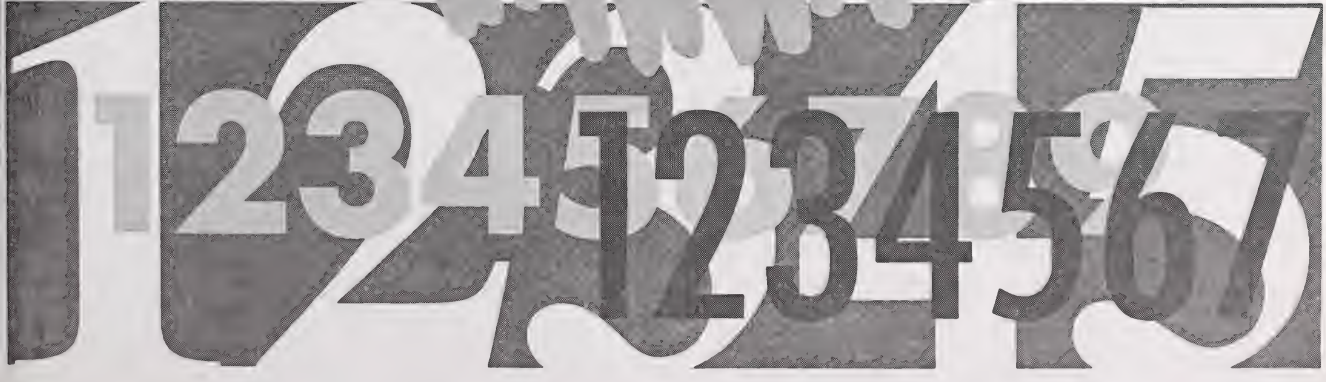

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Summary

	Total Possible Marks	Your Mark
Section 3 Assignment	31	

Teacher's Comments

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Students	✓
Teachers	✓
Administrators	
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Assignment Booklet 2C
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ASSIGNMENT BOOKLET 2C
MODULE 2: NUMBER CONNECTIONS
SECTION 3 ASSIGNMENT

Your mark for this module will be determined by how well you do your assignments in the Assignment Booklets.

This Assignment Booklet is worth 31 marks out of the total 100 marks for Module 2.

Work slowly and carefully. If you are having difficulties, go back and review the appropriate topic.

Be sure to proofread your answers carefully.

(31)

Section 3 Assignment: Data, Bivariate Data, and Scatter Plots

Read all parts of your assignment carefully and record your answers in the appropriate places. Clearly show how you arrived at your answers by showing your work.

1. The following pictograph shows the Stanley Cup winners from 1960 to 1990.

Stanley Cup Winners (1960–1990)	
Boston Bruins	
Calgary Flames	
Chicago Blackhawks	
Edmonton Oilers	
Montreal Canadiens	
New York Islanders	
Philadelphia Flyers	
Toronto Maple Leafs	
Legend: Each represents 1 Stanley Cup.	

(1) **a.** How is the data in this pictograph arranged?

_____

_____

(2) **b.** What percent of the Stanley Cups did the Edmonton Oilers win from 1960 to 1990? Round your answer to the nearest whole number percent.

(2) **c.** Write the ratio, in simplest form, of the number of Stanley Cups the Montreal Canadians won to the number of Stanley Cups the Toronto Maple Leafs won in this time period.

(2) **d.** Write the ratio, in simplest form, of the number of Stanley Cups that American teams have won to the number of Stanley Cups that Canadian teams have won in this time period.

2. For each of the following examples, state what type of relationship you would expect on a scatter plot. The relationships could be the following:

- The points plotted rise to the right.
- The points plotted fall to the right.
- The points plotted show no apparent relationship.

Justify your answers. State, if possible, which is the independent variable and which is the dependent variable.

(3) **a.** The distance travelled in a taxicab and the cost of the trip.

(3) **b.** The number of books read per month and the number of hours of television watched per month.

(3) **c.** The number of minutes per month spent on long distance calls and the cost per month for long distance calls.

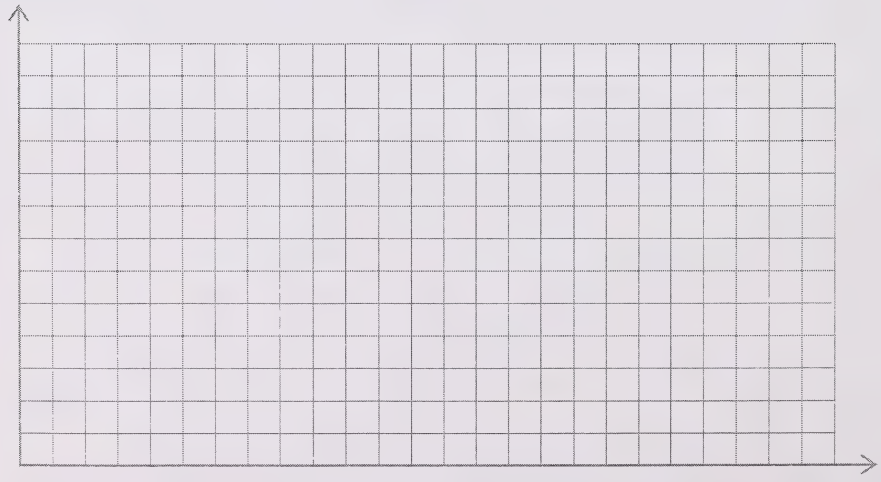
3. The following data was obtained to determine if the federal hourly minimum wage is directly related to the number of years since it was introduced.

Year	Number of Years	Minimum Wage	Year	Number of Years	Minimum Wage
1938	0	0.25	1975	37	2.10
1939	1	0.30	1976	38	2.30
1945	7	0.40	1978	40	2.65
1950	12	0.75	1979	41	2.90
1956	18	1.00	1980	42	3.10
1961	23	1.15	1981	43	3.35
1963	25	1.25	1990	52	3.80
1967	29	1.40	1991	53	4.25
1968	30	1.60	1996	58	4.75
1974	36	2.00	1997	59	5.15

(1) **a.** Which variable is the independent variable?

_____

(4) **b.** Make a scatter plot of the data on the following grid. Use the number of years after 1938 for one axis and the minimum wage for the other axis. Then draw a line of best fit by inspection. You may use a spreadsheet to create the scatter plot and the line of best fit. If you use a spreadsheet, print the graph and attach it here.



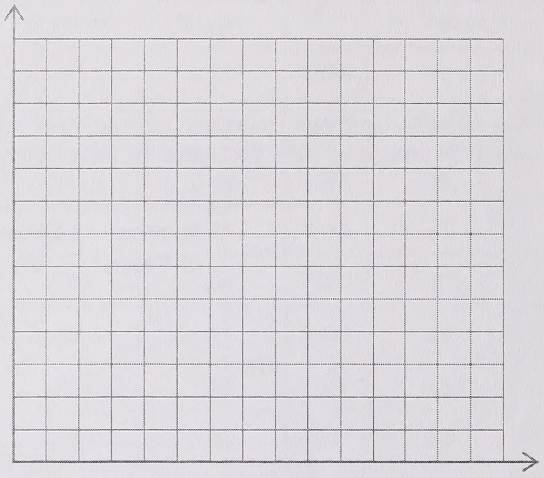
(2) **c.** Using your line of best fit, interpolate the minimum wage in 1986.

(2) **d.** You are lobbying for an increase in the minimum wage. You decide to make your base year 1974 instead of 1938. Complete the following table.

Year	Number of Years	Minimum Wage
1974	0	2.00
1975		2.10
1976		2.30
1978		2.65
1979		2.90
1980		3.10
1981		3.35
1990		3.80
1991		4.25
1996		4.75
1997		5.15

(4)

e. Make a scatter plot of the data on the following grid; then draw a line of best fit (use a straight edge) by inspection. You may use a spreadsheet to create your scatter plot and line of best fit. If you use a spreadsheet, print your graph and attach it here.



(2)

f. Does the line of best fit in question 3.e. aid in your argument for an increase in minimum wage better than the first graph? Explain.